

CLAIMS

1. A wire material for a coil expander used for a coil expander of a combination piston ring comprising a piston ring and the coil expander for pressing and urging the piston ring outward in the radial direction thereof,

wherein a cross-sectional shape thereof is a rectangular shape, and

when the coil expander is formed by using the wire material for a coil expander, the surface of the wire material for a coil expander, constituting an outer peripheral surface of the coil expander, is formed into a convex curved shape.

2. The wire material for a coil expander according to claim 1, wherein the height of the curved surface in the surface of the wire material for a coil expander, which is formed into the convex curved surface, is in a range of 0.03 to 0.1 mm.

3. The wire material for a coil expander according to claim 1 or 2, wherein, when the coil expander is formed by using the wire material for a coil expander, the surface of the wire material for a coil expander, constituting an inner peripheral surface of the coil expander, is formed into a concave curved shape.

4. The wire material for a coil expander according to claim 3, wherein, when the height of the curved surface in the surface of the wire material for a coil expander formed into the convex curved shape is "a" and the height of the curved surface in the

surface of the wire material for a coil expander formed into the concave curved shape is "b", $a \geq b + 0.005$ mm.

5. The wire material for a coil expander according to any one of claims 1 to 4, wherein a radius of curvature of the curved surface of outer periphery side surface edges, located at both ends in a width direction of the wire material for a coil expander, of the surface of the wire material for a coil expander formed into the convex curved shape is smaller than the radius of curvature of the curved surface of an outer periphery side surface midportion located at the central portion in the width direction of the wire material for a coil expander.

6. The wire material for a coil expander according to any one of claims 3 to 5, wherein a radius of curvature of the curved surface of inner periphery side surface edges, located at both ends in a width direction of the wire material for a coil expander, of the surface of the wire material for a coil expander formed into the concave curved shape is smaller than the radius of curvature of the curved surface of an inner periphery side surface midportion located at the central portion in the width direction of the wire material for a coil expander.

7. The wire material for a coil expander according to any one of claims 1 to 6, wherein a side surface of the wire material for a coil expander is flat.

8. The wire material for a coil expander according to any one of claims 1 to 7, wherein the piston ring is an oil ring.

9. The wire material for a coil expander according to any one of claims 1 to 8, wherein the wire material for a coil expander is formed of a shape memory alloy.

10. A coil expander, wherein the wire material for a coil expander according to any one of claims 1 to 9 is used to form the coil expander.

11. A coil expander used for a combination oil ring comprising an oil ring and the coil expander for pressing and urging the oil ring outward in the radial direction thereof,

wherein the coil expander is formed of a shape memory alloy, has a rectangular cross-sectional shape and an outer peripheral surface thereof is flat.

12. The coil expander according to claim 11, wherein the outer peripheral surface of the coil expander is a plasticity processed surface.